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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/605,660	10/16/2003	Sung-Fei Wang	10041-US-PA	2659
31561	7590	02/18/2005	EXAMINER	
JIANQ CHYUN INTELLECTUAL PROPERTY OFFICE 7 FLOOR-1, NO. 100 ROOSEVELT ROAD, SECTION 2 TAIPEI, 100 TAIWAN			NGUYEN, THINH T	
			ART UNIT	PAPER NUMBER
			2818	

DATE MAILED: 02/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No.		Applicant(s)	
	10/605,660		WANG, SUNG-FEI	
	Examiner		Art Unit	
	Thinh T. Nguyen		2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-15, 24 and 25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-15, 24 and 25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10/16/2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED OFFICE ACTION

1. Applicant's election of claims 11-15 for prosecution of the present Application in the communication with the Office on February 2nd 2005 is acknowledged. Therefore, claims 11-15 and newly added claimed 24-25 are pending in the application.

Drawings.

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claim. Therefore the high density semiconductor package wherein the first package module is arranged substantially non-orthogonal (in claim 25 for example) to the second package must be shown or the feature(s) cancelled from the claim (s). no new matter should be entered.

A proposed drawings correction or corrected drawings are required in reply to the Office Action to avoid abandonment of the application. The objection to the drawings will not be hold in abeyance.

Specification

3. The specification has been checked to the extent necessary to determine the presence of all possible minor errors. However, the applicant cooperation is requested in correcting any errors of which the applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(b/e) that form the basis for the rejections under this section made in this office action.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claim 11,13 are rejected under 35 U.S.C. 102(b) as being anticipated by Chu et al. (U.S. Patent 5,856,937) or Degani et al. (US patent 5,990,564) or under 35 U.S.C. 102 (e) as being anticipated by Brillhart (US patent 6,475,830).

REGARDING CLAIM 11,13

Chu (fig 2,the abstract) discloses a high density semiconductor package, comprising: a substrate, having a surface; a first package module (fig 2 reference 17,19), being disposed on the surface of the substrate; and a plurality of second package modules, being disposed on the surface of the substrate surrounding the first package module, wherein a corner of each of the second package modules face a side of the first package module and wherein the first package is coplanar with the second packages module.

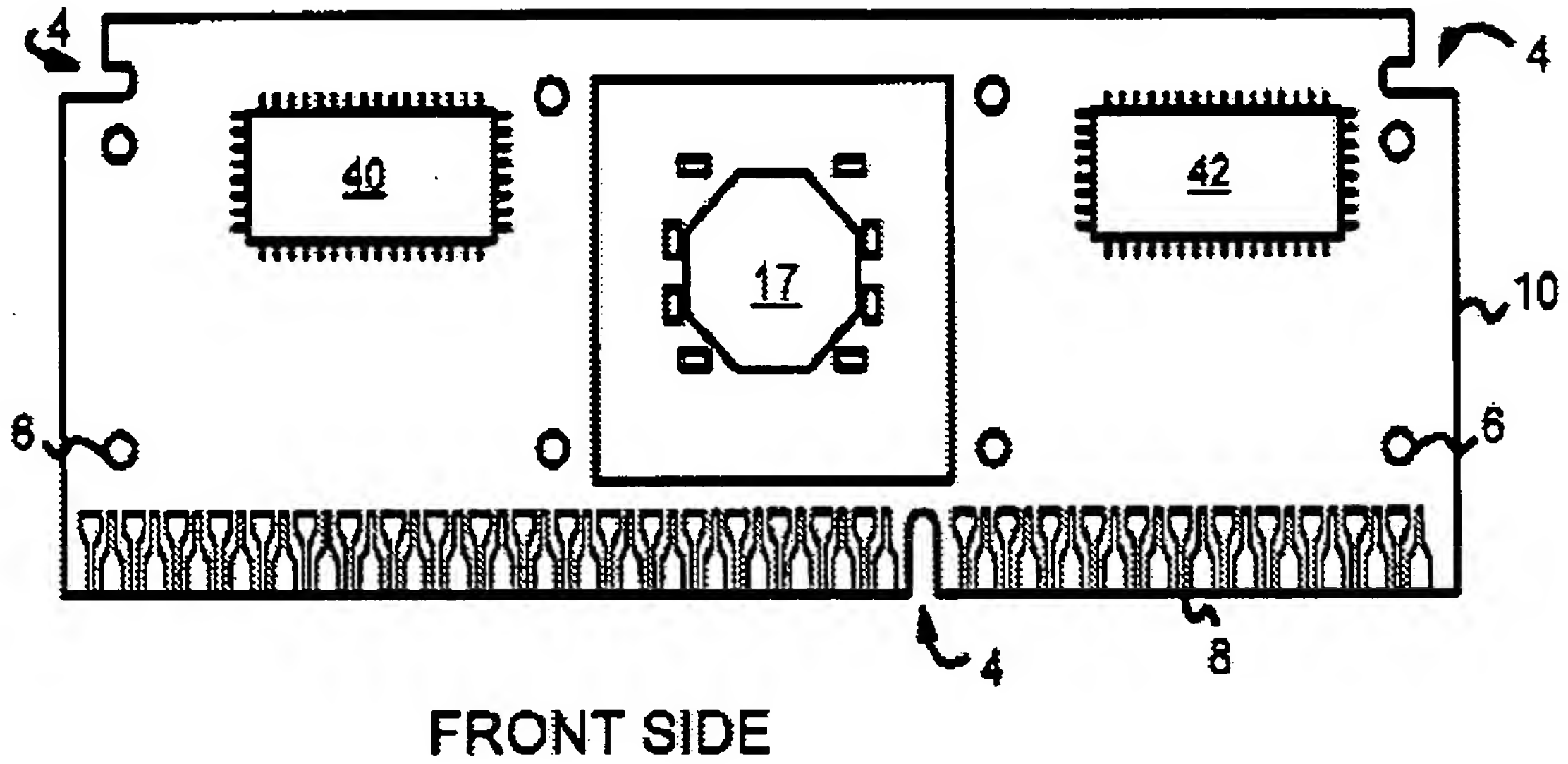
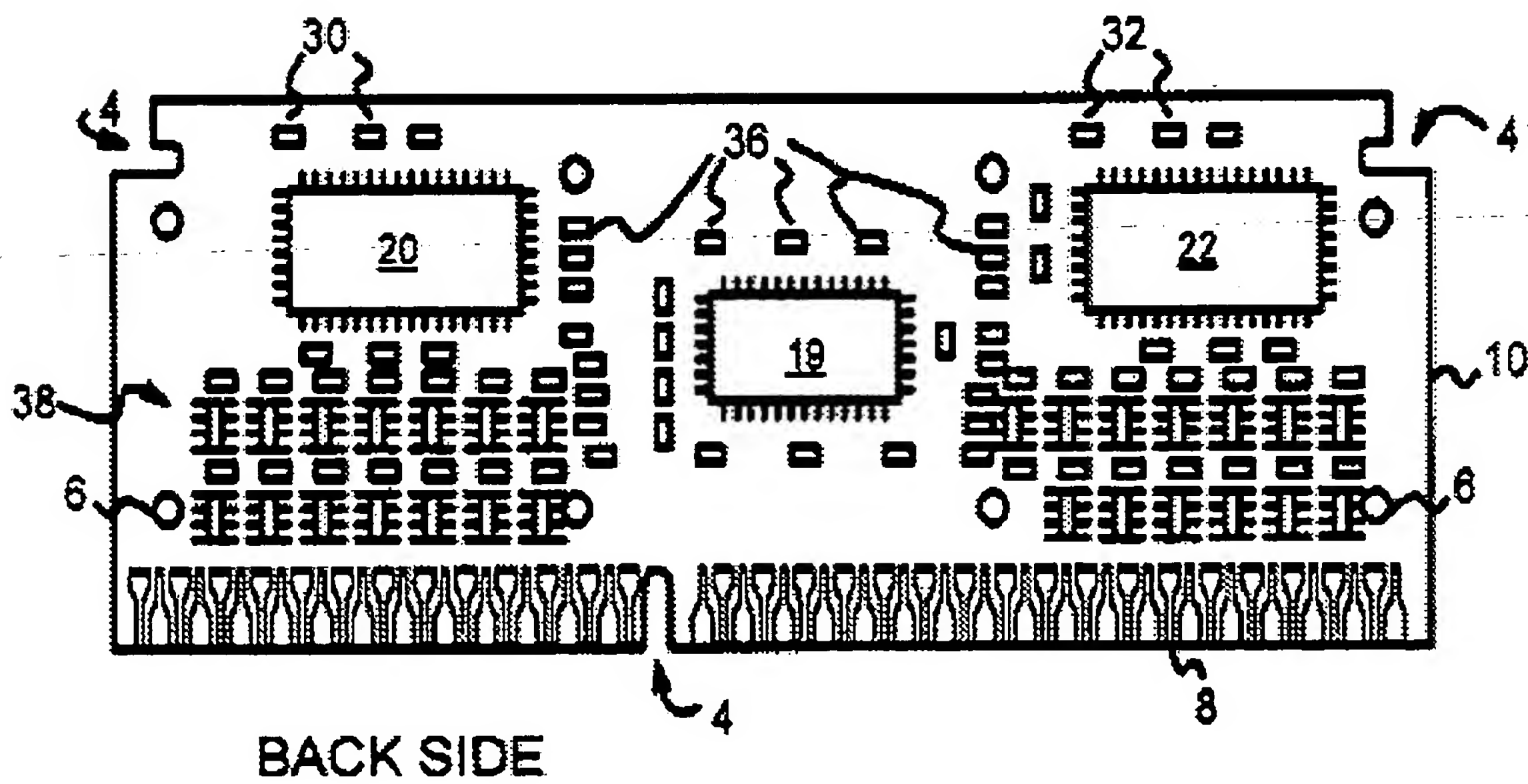


FIG. 2



Similarly, Degani et al.(the abstract, fig 1) disclose the same invention.

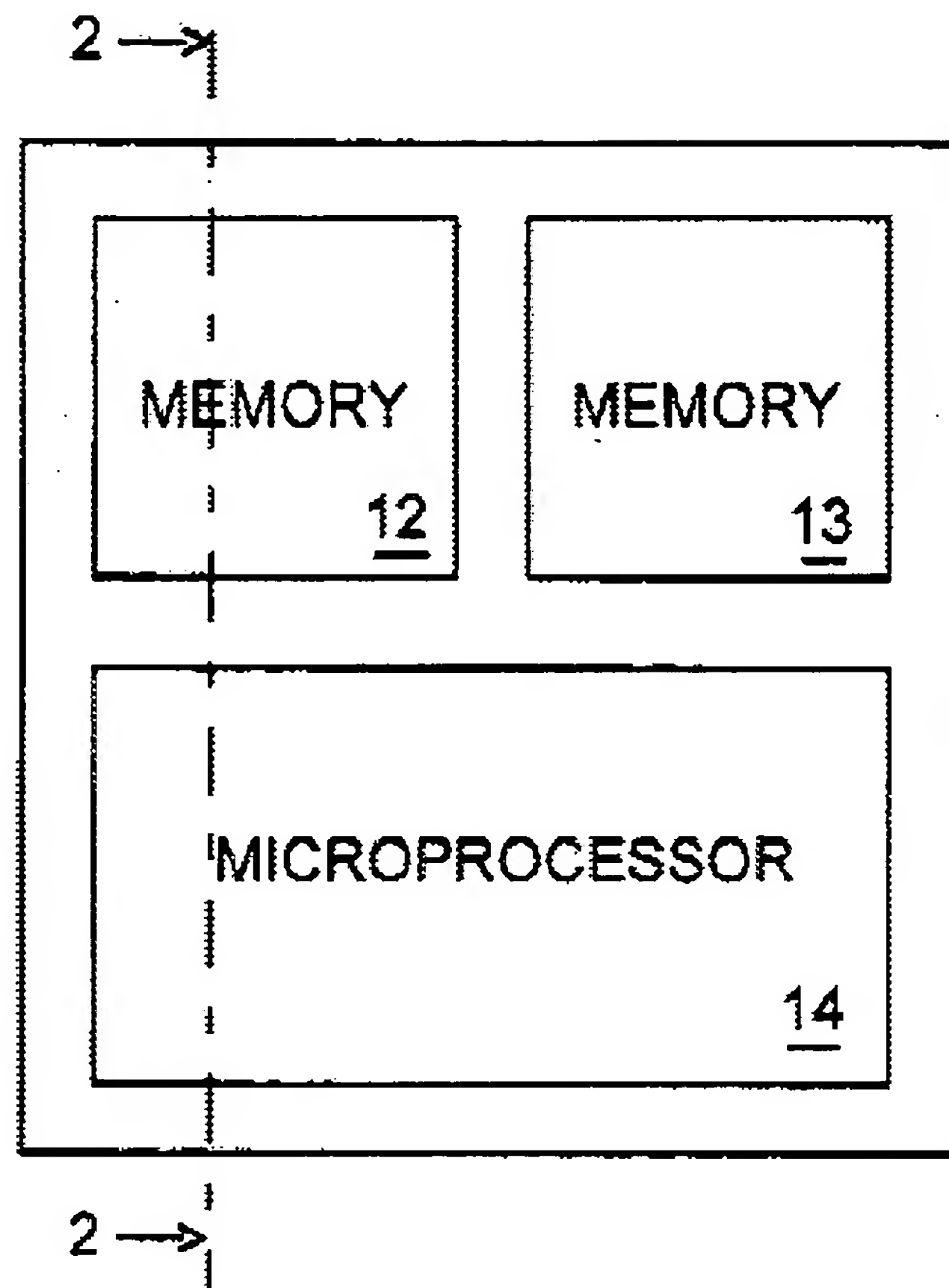


FIG. 1

And furthermore, Brillhart (the abstract, fig 2) disclose the same invention

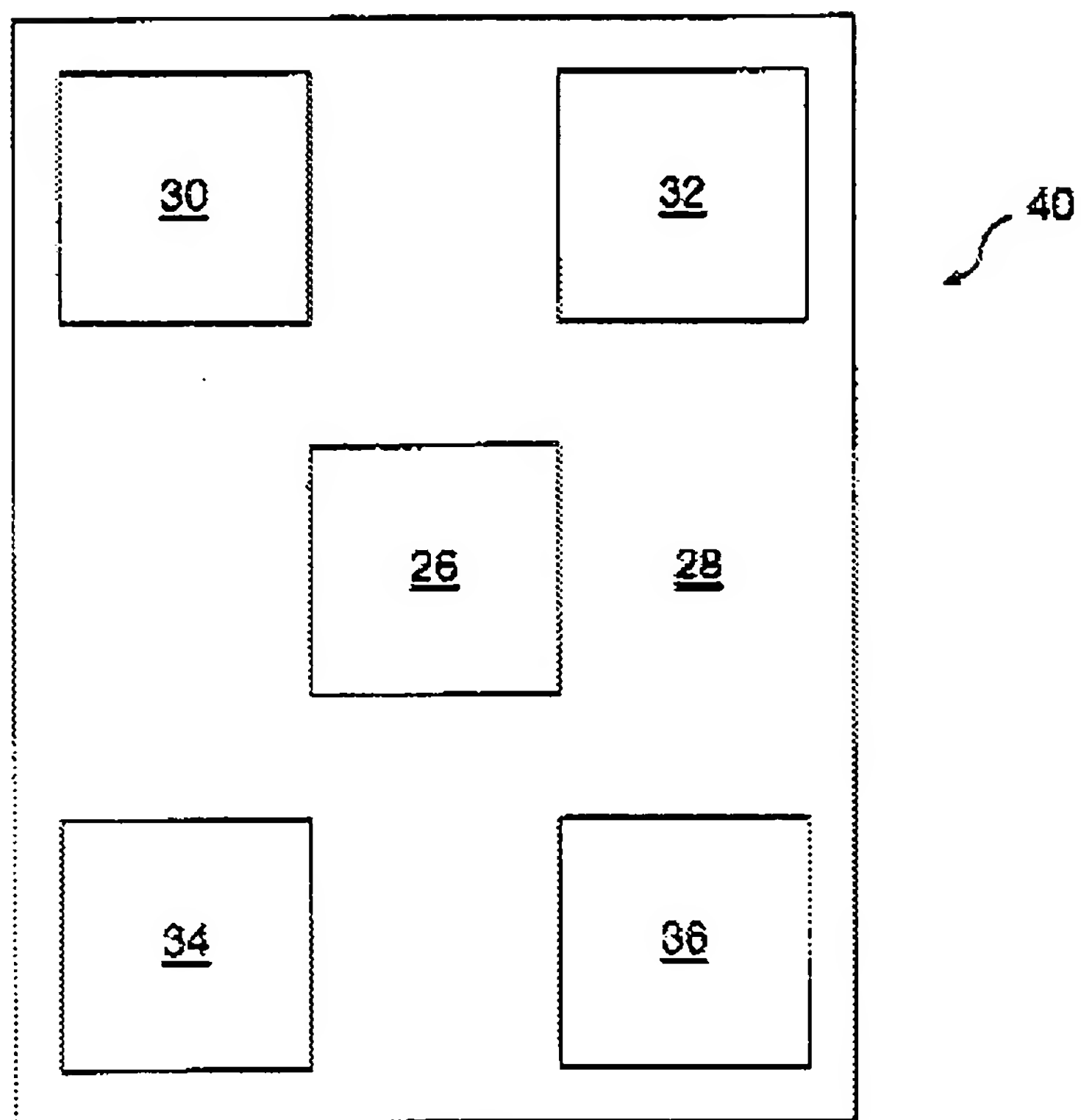


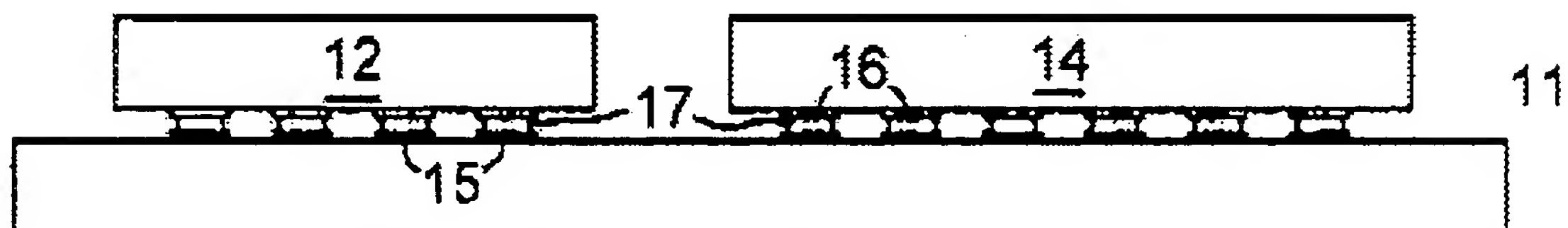
FIG. 2

6. Claims 14 is rejected under 35 U.S.C. 102(b) as being anticipated by Degani et al (US patent 5,990,564) or under 102 (e) as being anticipated by Brillhart (US patent 6,475,830).

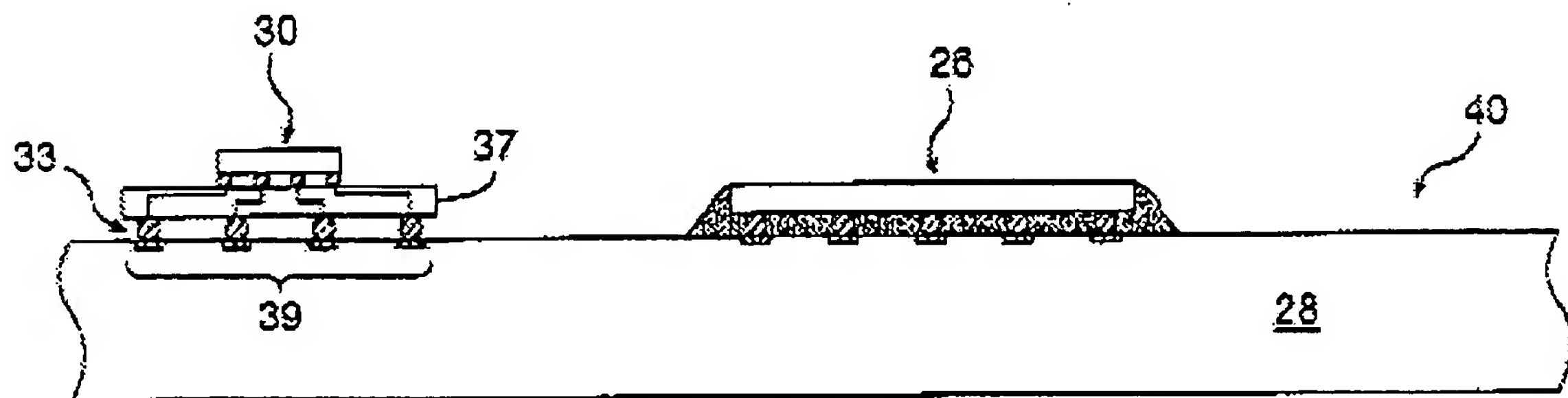
REGARDING CLAIM 14

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Degani discloses (in the abstract, fig 2,column 3 line 56) wherein the first package module comprises: a chip; a plurality of bumps located between the chip and the substrate; and an underfill located between the chip and the substrate and enveloping the bumps.

**FIG. 2**

Similarly, Brillhart (the abstract, fig 2, fig 3, chip 26) discloses the same invention



7. Claims 15,25 are rejected under 35 U.S.C. 102(b) as being anticipated by Degani et al.
(US Patent 5,990,564)

REGARDING CLAIM 15

Degani discloses (in the abstract, fig 2,fig 3 chip 12 , column 3 line 56) wherein each of the second package modules comprises: a chip; a plurality of bumps located between the chip and the substrate; and an underfill located between the chip and the substrate and enveloping the bumps.

REGARDING CLAIM 25

Degani discloses (in the abstract, in fig 1) a semiconductor package wherein the first package module is arranged substantially non-orthogonal to the second package module.

8. Claim 24 is rejected under 35 U.S.C. 102(e) as being anticipated by Brillhart (US patent 6,475,830).

Brillhart (in fig 2, in the abstract) discloses a high density semiconductor package as wherein the first package module is arranged substantially orthogonal to the second package modules.

Claim Rejections - 35 USC § 103

9. The following is a quotation of U.S.C. 103(a) which form the basis for all obviousness rejections set forth in this office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 12 is rejected under 35 U.S.C. 102(b) as being anticipated by Degani et al. (US patent 5,990,564) or as an alternative being obvious under 35 U.S.C. 103(a) as being obvious under Degani et al. (U.S. patent 5,990,564).

REGARDING CLAIM 12

Degani et al (the abstract, fig 2, column 3 line 26) disclose all the invention including a underfill for all the chips and even though Degani do not disclose the gap between chips this gap

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is inherently greater than 1 or 2 mm for packaging multiple chip module with underfill technology as evidenced by the disclosure by Kazama et al. (US patent 6,696,765) column 6 lines 20-25.

11. When responding to the office action, Applicants are advised to provide the examiner with the line numbers and the page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

12. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to be abandoned (see M.P.E.P. 710.02(b)).

13. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d) which papers have been placed of record in the file.

CONCLUSION

14. The prior arts made of record and not relied upon are considered pertinent to applicant disclosure: Pu et al (US patent 6,610,560) disclose a chip-on-chip based multi-chip module with molded underfill and method for making the same.

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15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thinh T Nguyen whose telephone number is 571-272-1790.

The examiner can normally be reached on Monday-Friday 9:00am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached at 571-272-1787.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Thinh T. Nguyen



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David Nelms
Supervisory Patent Examiner
Technology Center 2800